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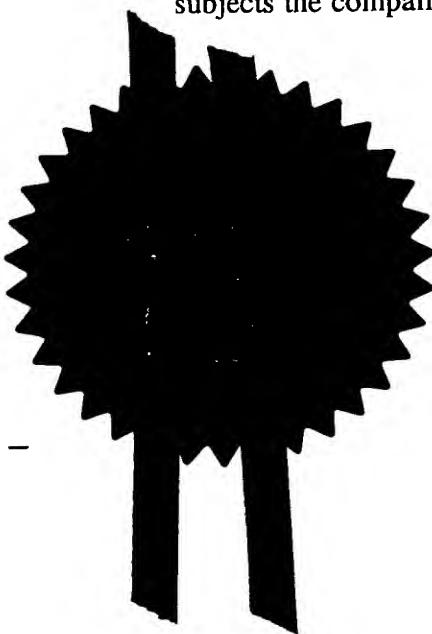
REC'D	13 OCT 1998
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Signed

Dated

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## Request for grant of a patent

*(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)*

## 1. Your reference

10184P1 GB

## 2. Patent application number

*(The Patent Office will fill in this part)*3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Reckitt & Colman Products Limited  
One Burlington Lane  
LONDON  
W4 2RW

Patents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

ENGLAND

C00514241 CC1

## 4. Title of the invention

Improvements in or relating to Organic Compositions

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Mr Martin N. Dale  
Reckitt & Colman plc  
Group Patents Department  
Dansom Lane  
HULL  
HU8 7DS  
ENGLAND

25 SEP 1997

Patents ADP number *(if you know it)*

C00514241 CC1

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country

Priority application number  
*(if you know it)*Date of filing  
*(day / month / year)*

## 7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
*(day / month / year)*8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

- a) *any applicant named in part 3 is not an inventor, or*
- b) *there is an inventor who is not named as an applicant, or*
- c) *any named applicant is a corporate body.*

*See note (d)*

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Continuation sheets of this form

Description 22 pages /

Claim(s) 6 pages /

Abstract 2 pages /

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

2

Request for preliminary examination and search (Patents Form 9/77)

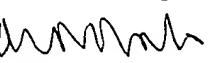
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Request for substantive examination  
(Patents Form 10/77)Any other documents  
(please specify)

Fee Sheet (FS1)

11.

I/We request the grant of a patent on the basis of this application.

Signature   
Martin N. Dale

Date 24.09.97

12. Name and daytime telephone number of person to contact in the United Kingdom

Martin N. Dale

01482 582905

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Improvements in or relating to organic compositions

It has been known for a long time that house dust  
5 can trigger allergenic reactions in humans, such as  
asthma and rhinitis. It was reported, as early as  
1928, that it was the dust mites in the dust that were  
the primary source of the allergenic response but it  
was only in the 60's that researchers appreciated its  
significance.

10

It is believed that the faeces of the house dust  
mite, *Dermatophagoides farinae* (known as Der-f) and  
*Dermatophagoides pteronyssinus* (known as Der-p) trigger  
the immune responses of the body, thereby giving rise  
to well known allergenic symptoms.

15

A review of this is given in **Experimental and  
Applied Acarology**, 10 (1991) p. 167-186 in an article  
entitled "House dust-mite allergen" : A review by L. G.  
Arlan.

20

One way to overcome these allergenic response has  
been to thoroughly vacuum surfaces, such as carpets,  
that contain the dust mites and their faeces thoroughly  
and often, but that is both time consuming (i.e. has to  
be regularly done if one wants to make an allergenic  
25 free environment) and is very dependant on the  
efficiency of vacuum cleaner and filter bag used e.g.  
micron filter bag or 2 layer vacuum bags.

An alternative method of creating an allergen-free  
30 environment has been to denature the allergen, for

example as described in US Patent No. 4,806,526. The only effective method however of which we are aware is to apply tannic acid to the allergen. However, tannic acid can cause staining, and this is a particularly acute problem for light coloured carpets (e.g. white and light beige carpets) and other textile surfaces as tannic acid leaves a deep brown stain.

Therefore, we have been looking for allergenic denaturants which will not stain susceptible surfaces 5 such as carpets and still deactivate the allergen.

We have surprisingly found that deactivants are specific to the type of dust mite allergen being treated. For example an effective Der-f allergen deactivants will not automatically work effectively as 15 a Der-p allergen deactivant.

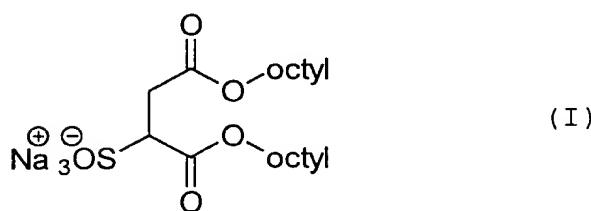
We have looked into Der-f allergen deactivant and have found only a select number of deactivants destroy the Der-f allergen, whilst at the same time not leaving a stain.

According to the invention there is provided a method for deactivating a Der-f allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after 20 defined as the deactivant) selected from

- i) urea,
- ii) cedarwood oil,
- iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- 30 v) aluminium chlorohydrate,

- vi) 1-propoxy-propanol-2,
- vii) polyquaternium-10
- viii) silica gel ,
- ix) hydrogenated hop oil,
- 5 x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- xiii) hinokitiol,
- xiv) N-methyl pyrrolidone,
- xv) L-ascorbic acid,
- 10 xvi) "immobilised tannic acid", (hereinafter defined)
- xvii) chlorohexidine,
- xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- 15 xx) hinoki oil,
- xxi) a composite of AgCl and TiO<sub>2</sub>
- xxii) diazolidinyl urea,
- xxiii) 6-isopropyl-m-cresol,
- xxiv) a compound of formula I,

20

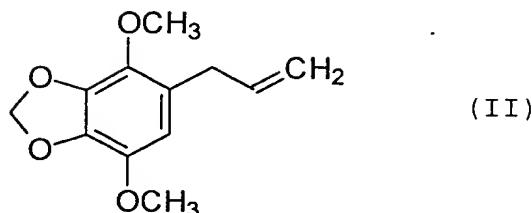


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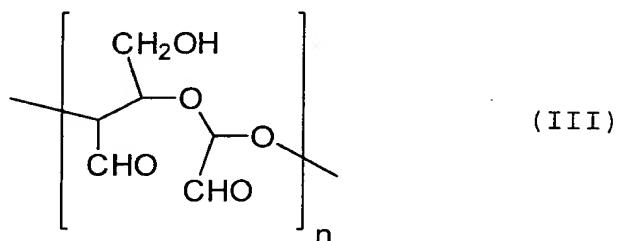
xxv) a compound of formula II

5



10 xxvi) a polymeric compound containing two or more of  
a recurring unit of the formula III

15



where n = 2 to 200.

20 In this Specification, the definition of the  
following compounds or compositions is given below:  
A compound of formula I is commercially available as  
Aerosol OT.

25 A compound of formula II is commercially available  
as parsley camphor.

Hinoki oil is a mixture of Thujan-3-one, 2-pinene,  
3,5,7,3',4' pentahydroflavanone and 1,3,3,-  
trimethyl-2-norcamphanone.

30

Cedarwood oil, contains  $\alpha$ - and  $\beta$ - cedrene (ca 80%), cedrol (3-14%) and cedrenol. Other sesquiterpenes and some monoterpenes are also present.

5 Polyquaternium-10 is a polymeric quaternary ammonium salt of hydroxy ethyl cellulose reacted with a trimethyl ammonium substituted epoxide commercially available as Polymer JR-125.

10 Silica gel is also known as colloidal silica or silicic acid and is commercially available as Kent.

Hinokitiol is also known as  $\beta$ -thujaplicin.

15 "Immobilised tannic acid" is tannic acid on polyvinyl pyrrolidone beads. "Immobilised Tannic Acid" is prepared as follows:

20 100 mg of tannic acid dissolved in water, 50 mg of Polyclar 10 (ISP, Guildford Surrey) polyvinyl pyrrolidone beads were added and stirred for one hour. The beads were filtered off the solution and washed with a few mls of iced water until no colour was seen in the washings. They were then dried in the oven at 50°C.

25 The composite of silver chloride and  $TiO_2$  is made up of 20% wt/wt AgCl on 80%  $TiO_2$  3-5  $\mu m$  porous beads.

The deactivant is present in an amount of from 0.01 - 7%, preferably 0.01 to 3%.

Preferably the amount of deactivant present in such a method is from 0.5 oz to 5 oz per 10 yds<sup>2</sup>, more preferably 1 oz per 11 yds<sup>2</sup> of area treated.

5 Preferably the deactivant is selected from

hinoki oil,  
a composite of AgCl and TiO<sub>2</sub>,  
diazolidinyl urea  
6-isopropyl-m-cresol,  
10 chlorohexidine,  
maleic anhydride,  
the sodium salt of anthraquinone and  
a compound of formula I or II, defined above.

15 Further according to the invention there is provided an aerosol composition containing

a) a deactivant (hereinafter the Deactivant) selected from

- i) urea,
- 20 ii) cedarwood oil,
- iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,
- vi) 1-propoxy-propanol-2,
- vi) polyquaternium-10,
- 25 viii) silica gel ,
- ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- xiii) hinokitiol,
- 30 xiv) N-methyl pyrrolidone,

- xv) L-ascorbic acid,
- xvi) "immobilised tannic acid", (hereinafter defined)
- xvii) chlorohexidine,
- 5 xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- xx) hinoki oil,
- xxi) a composite of silver chloride and TiO<sub>2</sub>
- xxii) diazolidinyl urea,
- xxiii) 6-isopropyl-m-cresol,
- 10 xxiv-xxvi) a compound of formula I, II or III defined above;

- b) a propellant and
- c) optionally a solvent.

15 Preferably the amount of deactivant present in such a composition is from 0.01 - 7%, preferably 0.01 to 3%,

20 Preferably the amount of propellant present in such a composition is 4-50%, more preferably 4 to 30%,

Preferably the amount of solvent present in such a composition is 0 to 99.95, more preferably 0 to 90%, most preferably 20 to 90%.

25 Preferably the deactivant is selected from  
hinoki oil,  
a composite of AgCl with TiO<sub>2</sub>,  
diazolidinyl urea,  
6-isopropyl-m-cresol,  
30 chlorohexidine,

maleic anhydride,  
the sodium salt of anthraquinone and  
a compound of formula I or II defined above.

5 Preferably the propellant is selected from those commercially available, for example C<sub>1-4</sub> alkanes and hydrochlorofluorocabrons and compressed gases such as nitrogen air and carbon dioxide.

10 Preferably the solvent is selected from C<sub>1-6</sub> alcohols (e.g. ethanol) or water.

In addition the composition may also contain one or more of the following

15 a fragrance, (preferably in an amount of 0 to 5%), more preferably 0 to 2%.

an antimicrobial compound e.g. alkyl dimethyl benzyl ammonium saccharinate (preferably in an amount of 0.01 to 1%)

20 a surfactant (e.g. Dow Corning 193 Surfactant or (preferably in an amount of 0.01 to 1%)

a corrosion inhibitor (e.g. sodium nitrite, sodium benzoate, triethanolamine and ammonium hydroxide  
25 (preferably in an amount of 0.01 to 10%), and/or

30 a miticide (such as benzyl benzoate, pyrethroid pemethrin, d-allethrin and optionally a synergist such as piperonyl butoxide (preferably in an amount of 0.1 to 10%)).

It has been found that deactivants of the invention have as effective allergen deactivating properties as tannic acid but without the drawback of staining.

5

The invention will now be illustrated by the following Examples.

The test procedure in Examples 1 to 17 is as follows and is known as the ELISA protocol.

10

The ELISA protocol for Der-f has been developed as follows as a measure of denaturing property for denaturants.

ELISA Protocol 1

15

1. Dust is collected from Hoover (a trademark) bags and passed through a series of sieves down to 63 microns.

20

2. Clean petri dishes are labelled with the chemical to be tested (on the base), three replicates are used for each treatment.

25

3. Filter paper is used to line each dish and 0.2g of dust is added to each dish onto the filter paper. The lid (or base, as dishes are inverted) is replaced and the dish is shaken to disperse of dust evenly over the filter paper.

30

4. 2% aqueous solutions of deactivant was used except for the silver chloride composite where 0.05% was used instead. Immobilised tannic acid was used as a 1%

dispersion. The hydrogenerated hop end was used at the 2% level (in the form of a 10% solution). Water insoluble deactivant were emulsified with surfactant (a sorbitone oleate surfactant (i.e. Tween). Hinokitol was used at 0.5% not 2%.

5

5. The dust is sprayed with the corresponding treatment, 2 sprays are required for sufficient coverage(1 spray = 1.5ml).

10 6. Leave uncovered at room temperature, in well aerated room, until filter paper is dry. This can take up to 4 hours.

7. Empty dust in epindorfs labelled according to treatment.

15

8. Add 1 ml of 5% Bovine Serum Albumen Phosphate Butter Saline - Tween BSA-PBS-T to each epindorf (5 times the weight of dust) (20ml of BSA-PBS-T =1g of BSA in 20ml of PBS-T).

20

9. Leave overnight in the fridge.

10. Centrifuge for 5 minutes at 13,000 rpm.

11. Decant the supernatant into a new epindorf 25 labelled according to treatment.

12. Centrifuge again for 5 minutes at 13,000 rpm.

13. Make up dilution's of 1:10 and 1:100 by adding 100ul of neat solution to 900ul of 1% BSA-PBS-T (1:10).

30

This is repeated using 100ul of 1:10 dilution and add to 900ul of 1% BSA-PBS-T for 1:100 dilution.

ELISA Protocol 2 for Der f 1: Indoor Biotechnologies

5

1. Prepare samples and dilutions as in protocol 1.

2. Prepare 500 ml of 50 mM carbonate/bicarbonate buffer by dissolving **0.795g**  $\text{Na}_2\text{CO}_3$  and **1.465g**  $\text{NaHCO}_3$  in **500ml** of distilled water. Check the pH is at 9.6.

10 (This solution is kept in the fridge in a conical flask).

3. Monoclonal antibody, this is kept in the freezer. (1 $\mu$ g per well ; 11ml is needed) has to be added to the buffer using the following method this is

15

applied to the ELISA plate:

- **11ml** of carbonate/bicarbonate buffer is added to the dispensing tray.

- **11 $\mu$ l** of Der f 1 monoclonal antibody (Stored in freezer, epindorf in use is in

20

the fridge) is added to the buffer. To ensure that all the antibody is removed from the tip, wash out the pipette tip by sucking up and down in the buffer solution, gently stirring to mix thoroughly.

25

4. Pipette **100 $\mu$ l** of the antibody solution into each well of the microtiter plate, cover with a plate sealer and leave overnight at 4°C.

5. Empty the plate by quickly inverting it over the

30

sink, then dry by banging on a stack of paper

towels.

6. Add **200µl** of wash buffer to each well: PBS/0.05%  
tween (PBS-T).

5

7. Repeat stages 5 and 6 once more (making a total of 2  
washes).

10 8. Make sure all the wells are dry, then add **100µl** of  
1% BSA-PBS-T. Replace the plate sealer and incubate  
for **1 hour** at room temperature\*.

9. Repeat steps 5 to 7 (2 washes).

15 10. \*During the hour incubation period, prepare the  
allergen standards at dilutions between 125 and 1  
ng/ml Der f 1:

- Add **25µl** of allergen standard (kept in the  
**fridge** in polystyrene box) to **475µl** of 1% PBS-BSA-T  
and mix thoroughly - labelled '125'.

20

- **250µl** of 1% PBS-BSA-T is added 7 further  
epindorfs which are labelled 62.5, 31.25, 15.63,  
7.61, 3.9, 1.95 and 0.98.

- **250µl** is taken from the 1st epindorf (labelled  
125) and transferred to the next (labelled 62.5).  
This is mixed thoroughly.

25

- Using a new pipette tip, **250µl** is removed from  
epindorf labelled 62.5 and transferred to 31.25,  
this procedure is continued down to the 0.98  
concentration (125, 62.5, 31.25, 15.63, 7.61, 3.9,  
1.95, 0.98)

30

- In total  $475 + (250 \times 7) = 2.3\text{ml}$  : 0.023g of BSA

added to 2.3ml of PBS-T.

11. Add **100µl** aliquots of the allergen sample to the plate along with the standard allergen samples for the reference curve in duplicate. The standards usually go in the first two columns on the left hand side, with the least concentrated on top. Incubate for 1 hour.

5

12. Follow stages 5 to 6, completing a total of 5 washes.

10

13. Pore **11ml** of 1% BSA-PBS-T(0.11g of BSA to 11ml of PBS-T) to the dispensing tray. Add **11µl** of the biotinylated monoclonal antibody (fridge) and mix thoroughly.

15

14. Pipette **100µl** into each well and incubate for 1 hour at room temperature.

20

15. Empty plate and wash as described in stage 12. (5 washes).

16. Add **11µl** of Streptavidin (freezer) to **11ml** of 1%BSA-PBS-T. Pipette **100µl** into each well and incubate for 30 minutes. Reserve any remaining solution in a vial.

25

17. Empty plate and wash as described in stage 12 (5 washes).

30

18. Make a solution of OPD, by putting the two tablets (in silver and gold foil) into 20 ml of distilled

water (in a glass vial). Shake quite vigorously in the dark until the tablets have dissolved (Wrap the vial up either in tin foil or paper towel).

5 19. Add a small amount to the remaining solution from stage 16. Wait for a colour change (positive reaction). Add  $200\mu\text{l}$  to each well and incubate for a minimum of 30 minutes in the dark.

10 20. Read the plate at 450nm/405nm if filter not available.

Examples 1 to 26

15 The deactivants, as set out in the following table, were treated according to the above procedure and the results are as given below. Tannic acid was used as a comparator. What was measured after treatment with deactivation tannic acid was the amount of allergen remaining active after treatment. The ratio of amount of remaining active allergen after treatment with 20 deactivant tannic acid is also given.

25

30

Table

Example	Deactivant	Amount of Allergen remaining active after deactivant treatment	Amount of Allergen remaining active after tannic acid treatment	Ratio of remaining active allergen after Deactivant/Tannic Acid Treatment	Number
5	1 Urea	3750	1500	2.500	i
	2 Polymeric dialdehyde	1325	550	2.409	xxvi
3	Cedarwood oil	1800	750	2.400	ii
4	Cyclodextrin	3850	1700	2.265	iii
5	hexadecyltrimethylammonium chloride	4075	1800	2.264	iv
10	6 Aluminium chlorohydrate	1675	750	2.233	v
	7 1-propoxy-propanol-2	3950	1800	2.194	vi
8	Silica Gel (Kent)	2037.5	933.5	2.183	viii
9	polyquaternium-10 (Polymer JR-125)	4335	2000.00	2.168	vii
10	Hydrogenated Hop Oil	1100	550	2.000	ix
11	Propylene glycol alginate	3175	1700	1.868	x
15	12 Poly vinyl pyrrolidone	2450	1425	1.719	xi
13	Ammonium sulphate	2750	1700	1.618	xii

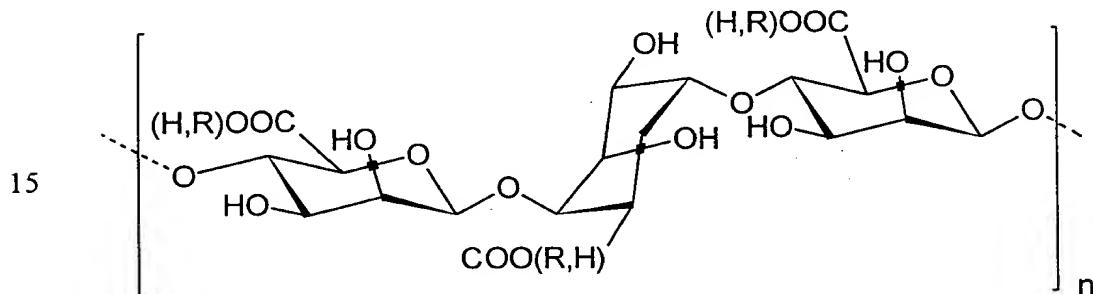
Example	Deactivant	Amount of Allergen remaining active after deactivant treatment	Amount of Allergen remaining active after tannic acid treatment	Ratio of remaining active allergen after Deactivant/Tannic Acid Treatment	Number
14	Hinokitol (0.5%)	3065	2000.00	1.533	xiii
15	N-methyl pyrrolidone	1600	1175	1.362	xiv
16	L-Ascorbic Acid	2000	1500	1.333	xv
17	Immobilised Tannic Acid	1550	1175	1.319	xvi
18	Aerosol OT	1525	1175	1.298	xxiv
19	Chlorohexidine	1412.5	1425	0.991	xvii
20	Parsley Camphor	1225	1387.5	0.883	xv
21	Maleic anhydride	1312.5	1500	0.875	xxviii
22	Anthraquinone sodium salt	1530	2000	0.765	xix
23	Hinoki oil	1025	1387.5	0.739	xx
24	Composite of AgCl and TiO <sub>2</sub>	1025	1425	0.719	xxi
25	Germall II	950	1387.5	0.685	xxii
15	Thymol	725	1387.5	0.523	xxiii

In the table certain compounds are used that are defined as follows:

5 Hydrogenated Hop Oil is the potassium salt of tetrahydroiso humulnic acid (known as reduced isomerised hop extract).

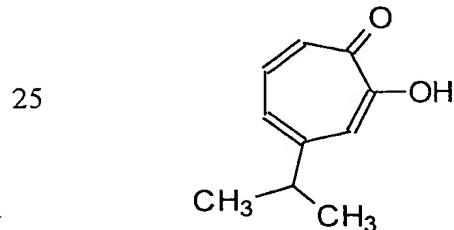
Polymeric dialdehyde is a compound containing 2-200 recurring units of the formula III.

10 Propylene glycol alginate is



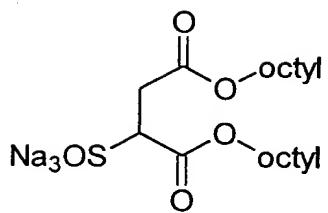
20 Chlorohexadene is 1,1'-hexamethylene bis [5-(4-chlorophenyl)-biguanide]

Hinokitiol is  $\beta$ -thujaplin, a compound of the formula



Aerosol OT is a compound of the formula

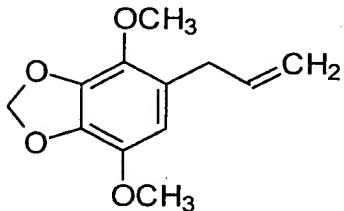
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Parsley extract is a compound of the formula

15



20

Hinoki oil is a mixture of Thujan-3-one, 2-pinene, 3,5,7,3',4' pentahydroflavanone and 1,3,3,- trimethyl-2-norcamphanone.

Germall II is diazolidinyl urea and Thymol is 6-isopropyl -m- cresol

Examples 27 to 30

25

The following formulations can be made up as a compositions for use as an aerosol for deactivating der-f allergens).

30

EXAMPLE 27

<u>Raw Ingredient Description</u> <u>By Weight</u>	<u>Item Classification</u>	<u>%</u>
5 Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
Corrosion Inhibitor		0.192
10 Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.096
Deionized Water	Water/Solvent	15.768
15 Carbon Dioxide	Propellant	4.000
TOTAL		100.000

EXAMPLE 28

<u>Raw Ingredient</u>	<u>Item Classification</u>	<u>%</u>
<u>Description by Weight</u>		
5 Anhydrous Ethanol (SD Alcohol 40)	Solvent	* 57.000
Fragrance#17	Fragrance	0.0500
10 Dow Corning 193 Surfactant	Surfactant	0.025
Corrosion Inhibitor		0.100
Corrosion Inhibitor		0.100
15 Deionized Water	Water/solvent	* 14.725
NP-40/Butane 40	Hydrocarbon propellant	28.000
TOTAL		100.000

\* = May replace with 95% Ethanol (SD Alcohol 40) at 61.755% by weight and 9.970% by weight Deionized water

EXAMPLE 29

<u>Raw Ingredient</u>	<u>Item Classification</u>	<u>%</u>
5 Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
10 Benzyl Benzoate - an acaricide	Active/ester	4.600
Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.096
15 Deionized Water	Water/solvent	11.168
Carbon Dioxide	Propellant	4.000
TOTAL		100.000

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EXAMPLE 30

	<u>Raw Ingredient</u> <u>Description by weight</u>	<u>Item Classification</u>	<u>%</u>
5	Anhydrous Ethanol (SD Alcohol 40)	Solvent	*57.000
	Benzyl Benzoate	Active/ester	4.600
	Fragrance#17	Fragrance	0.0500
10	Dow Corning 193 Surfactant	Surfactant	0.025
	Corrosion Inhibitor		0.100
	Corrosion Inhibitor		0.100
15	Deionized Water	Water/solvent	*10.125
	NP-40/Butane 40	Hydrocarbon propellant	28.000
	<b>TOTAL</b>		<b>100.000</b>

20 \* = May replace 95% Ethanol (SD Alcohol 40) at 61.755%  
by weight and 5.370% by weight Deionized water.

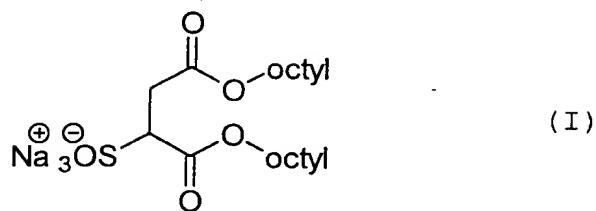
CLAIMS

1. A method for deactivating a Der-f allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the Deactivant) selected from

- 5 i) urea,
- ii) cedarwood oil,
- iii) cyclodextrin,
- 10 iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,
- vi) 1-propoxy-propanol-2,
- vii) polyquaternium-10
- viii) silica gel ,
- 15 ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- xiii) hinokitiol,
- xiv) N-methyl pyrrolidone,
- 20 xv) L-ascorbic acid,
- xvi) "immobilised tannic acid", (hereinafter defined)
- xvii) chlorohexidine,
- xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- 25 xx) hinoki oil,
- xx) a composite of silver chloride and TiO<sub>2</sub>
- xxi) diazolidinyl urea,
- xxii) 6-isopropyl-m-cresol,

xxiv) a compound of formula I,

5

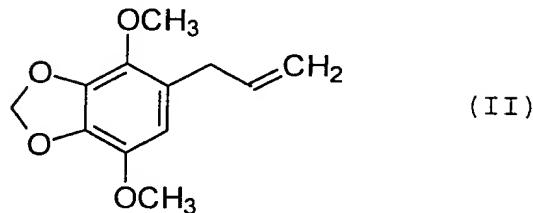


(I)

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xxv) a compound of formula II

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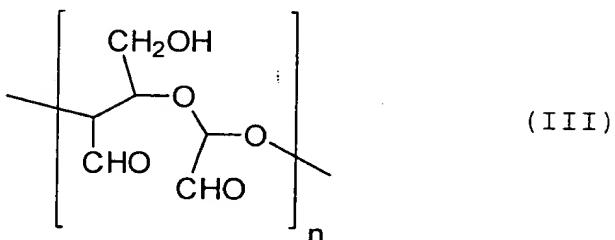
(II)

and

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xxvi) a polymeric compound containing two or more of  
a recurring unit of the formula III

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(III)

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where n = 2 to 200

2. A method according to Claim 1 in which the amount of Deactivant present is from 0.5 oz to 5 oz per 10 yds?

3. A method according to Claim 1 or Claim 2 in which the Deactivant is selected from

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hinoki oil,  
a composite of AgCl with TiO<sub>2</sub>,  
diazolidinyl urea  
6-isopropyl-m-cresol,  
10 chlorohexidine,  
maleic anhydride,  
the sodium salt of anthraquinone and  
a compound of formula I or II, defined in Claim 1.

4. An aerosol composition containing

15

a) a deactivant selected from

20 i) urea,  
ii) cedarwood oil,  
iii) cyclodextrin,  
iv) hexadecyltrimethylammonium chloride  
v) aluminium chlorohydrate,  
vi) 1-propoxy-propanol-2,  
vii) polyquaternium-10  
viii) silica gel,  
25 ix) hydrogenated hop oil,  
x) propylene glycol alginate,  
xi) polyvinyl pyrrolidone,  
xii) ammonium sulphate,  
xiii) hinokitiol,  
30 xiv) N-methyl pyrrolidone,  
xv) L-ascorbic acid,

xvi) "immobilised tannic acid", (hereinafter defined)

xvii) chlorohexidine,

xviii) maleic anhydride,

5 xix) the sodium salt of anthraquinone,

xx) hinoki oil,

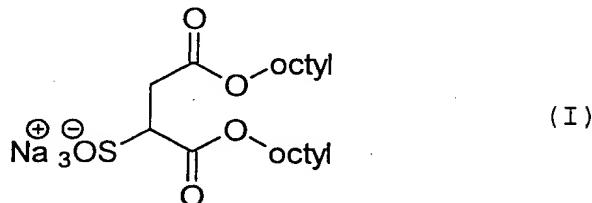
xxi) a composite of silver chloride and  $TiO_2$ ,

xxii) diazolidinyl urea,

xxiii) 6-isopropyl-m-cresol,

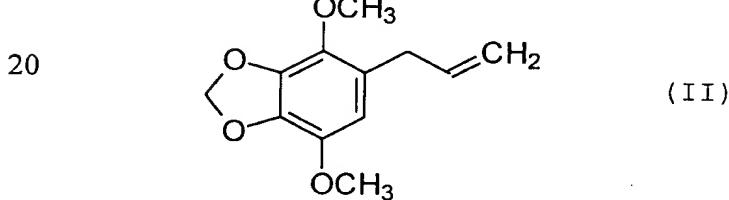
xxiv) a compound of formula I,

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xxv) a compound of formula II



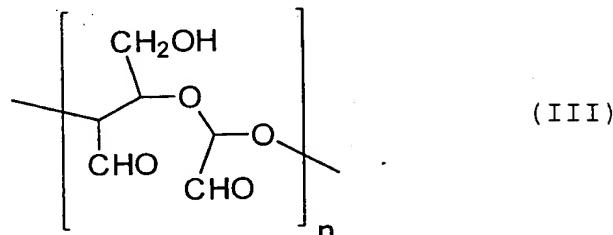
20 and

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xxiv) a polymeric compound containing two or more of a recurring unit of the formula III

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(III)

where  $n = 2$  to  $200$  (hereinafter defined as the Deactivant).

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- b) a propellant and
- c) optionally a solvent.

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6. A composition according to Claim 5 in which the amount of Deactivant present in such a composition is from  $0.01$  to  $7\%$ , the amount of propellant present in such a composition is  $0.05$  to  $3\%$ , and the amount of solvent present in such a composition is  $0$  to  $99.95\%$ .

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7. A composition according to Claim 5 or Claim 6 in which the Deactivant is selected from

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hinoki oil,  
a composite of  $\text{AgCl}$  with  $\text{TiO}_2$ ,  
diazolidinyl urea,  
6-isopropyl-m-cresol,  
chlorohexidine,  
maleic anhydride,  
the sodium salt of anthraquinone and  
a compound of formula I or II defined above.

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8. A composition according to any one of Claims 4 to 7 in which the propellant is selected from C<sub>1-4</sub> alkane and carbon dioxide.

5 9. A composition according to any one of Claims 4 to 8 in which the solvent is selected from C<sub>1-6</sub> alcohols (e.g. ethanol) or water.

10 10. A composition according to any one of Claims 4 to 9 in which the composition may also contain one or more of the following

15 a fragrance,  
a surfactant (e.g. Dow Corning 193 Surfactant  
an antimicrobial agent (e.g. alkyl dimethyl benzyl ammonium saccharinate),  
a corrosion inhibitor (e.g. sodium nitrite, sodium benzoate, triethanolamine and ammonium hydroxide),  
and/or  
a miticide (such as benzyl benzoate).

20 11. A method for denaturing a Der-f allergen substantially as herein described with reference to any one of the Examples.

12. A composition substantially as herein described with reference to any one of the Examples.

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ABSTRACT

Improvements in or relating to organic compositions

5 A method for deactivating a Der-f allergen comprising

contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the Deactivant) selected from

- 10      i)      urea,
- ii)      cedarwood oil,
- iii)      cyclodextrin,
- iv)      hexadecyltrimethylammonium chloride
- v)      aluminium chlorohydrate,
- vi)      1-propoxy-propanol-2,
- 15      vii)      polyquaternium-10
- viii)      silica gel,
- ix)      hydrogenated hop oil,
- x)      propylene glycol alginate,
- xi)      polyvinyl pyrrolidone,
- 20      xii)      ammonium sulphate,
- xiii)      hinokitiol,
- xiv)      N-methyl pyrrolidone,
- xv)      L-ascorbic acid,
- xvi)      "immobilised tannic acid", (hereinafter defined),
- 25      xvii)      chlorohexidine,
- xviii)      maleic anhydride,
- xix)      the sodium salt of anthraquinone,
- xx)      hinoki oil,
- xxi)      a composite of silver chloride and TiO<sub>2</sub>,
- 30      xxii)      diazolidinyl urea,
- xxiii)      6-isopropyl-m-cresol,

xxiv - xvi) a compound of formula I, II or a polymeric compound containing two or more of a recurring unit of the formula III.

5 An aerosol composition containing

- i) a specific deactivant
- ii) a propellant and
- iii) optionally a solvent.

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